CHAPTER 14
AFTER ACTION REVIEW (AAR) MAP
LESSON PLAN 14

METHOD:

Conference, demonstration, and practical exercise

TIME ALLOTTED:

5.0 hours

COURSE PRESENTED TO:

a.   Instructors
b.   Unit NCOs
c.   TAVSC personnel

TOOLS, EQUIPMENT, AND MATERIALS:

See Appendix A

PERSONNEL:

a.   Primary instructor
b.   Assistant instructor

INSTRUCTIONAL AIDS:

a.   TDRS computer unit
b.   Overhead projector
c.   Viewgraphs (Appendix E)

REFERENCES:

a.   TM 9-6920-711-12&P-1
b.   FM 21-26, Chapter 4
c.   Map of local area

APPENDICES:

Appendix A.   Tools, Equipment, and Materials
Appendix B.   Safety
Appendix C.   Test Administrative Guide
Appendix D.   Practical Exercises
Appendix E.   Viewgraphs

14-1.   INTRODUCTION.   (5 minutes)

Note.   Show Slide 1.

   a.   **Reason.** The AAR map program used with PGS, provides a tool to evaluate training exercises and individual crew performance. To be able to extract information required to conduct an AAR with a map, the instructor must be able to prepare the AAR and operate the AAR map program.

Note.   Show Slide 2.

   b.   **Training Objective.** In a classroom environment, given a TDRS computer unit and TM 9-6920-711-12&P-1, you will perform the following:

           (1)   Operate AAR map controls and indicators.
           (2)   Create a new exercise area.
           (3)   Change existing exercise areas.
           (4)   Evaluate training exercise using AAR map program.
           (5)   Create a grid map exercise area.

   c.   **Procedures.** During this block of instruction we will discuss controls, indicators, and features of the AAR map program.

14-2.   CONFERENCE/DEMONSTRATION/PRACTICAL EXERCISE.   (220 minutes)

Notes.   1.   Students must have the AAR map program started.
           2.   Discuss procedures relating to AAR map.
           3   Show Slide 3.

   a.   **Controls and Indicators.** The map portion of the AAR tool is started by selecting AAR map. The AAR map screen can be divided into four major areas.

           (1)   **Menu bar.** The menu bar is used to access the tools available to create or edit new training exercises and to evaluate completed training exercises.
           (2)   **Command buttons.** The command buttons are used to execute functions relating to TDRS memory card communication and data storage.
           (3)   **Presentation area.** The presentation area displays the selected exercise area and AAR results during training evaluation.
           (4)   **Exercise control toolbar.** The exercise control toolbar provides the instructor with tools used during AAR presentation to crews.

14-2

14-2. CONFERENCE/DEMONSTRATION/PRACTICAL EXERCISE (Con't).

Note.   Show Slide 4.

    b.   **Terminology.**

        (1)   **Conversion parameters.** Conversion parameters contain map, location, and time information used for transferring training exercise data to correct map positions. This data is programmed into the computer for each location using PGS for training.

        (2)   **Exercise area.** An exercise area is a map that has all scale information and conversion parameters entered into the database. This allows the vehicle position (GPS location) stored on the TDRS memory card to be matched to a map programmed in the computer. An exercise area can also contain information about target types and locations.

        (3)   **Map.** A map is a paper copy of a map representing the training area.

    c.   **Map Coordinates.** To position targets, adjust exercise areas, etc., the training instructor must be able to properly read the locations from a map.

Note.   Show Slide 5.

        (1)   **Map Format.** The computer map format is UTM, which divides the world into 60 grid zones starting at the 180ª meridian, is very similar to U.S. military grid reference system. UTM maps use a numerical 100,000 meter grid reference where U.S. military grid reference system substitutes single letters for several numbers. Distances in both systems are always read RIGHT and UP.

Note.   Show Slide 6.

        (2)   **Grid coordinates.** Grid coordinates used with the AAR software must be in divisions of 100.000 meter grid reference which can be found at the lower left corner of the map for the latitude and longitude directions and are repeated every 10 grids. The 100.000 meter grid square enables targets to be programmed on the map with a 1 meter resolution.

Note.   Show Slide 7.

        (3)   **Example of grid coordinate.** The example shows two grid coordinates (longitude and latitude) from Camp Pendleton. The coordinate values are presented with 100.000, 10.000, 1.000, 100, 10 and 1 meter grid designators. Grid coordinates must be input in the computer as one continuous number with seven digits for the longitude and latitude directions without spaces, parentheses, dashes, or decimal points.

14-2.   CONFERENCE/DEMONSTRATION/PRACTICAL EXERCISE (Con't).

d. **Creating an Exercise.**

    (1)   **Exercise area database.** Select EXERCISE AREA menu to determine which exercise areas exist in the computer. Three submenus are available to view, create, and edit exercises. Select EXERCISE AREA DATABASE.

Note.   Show Slide 8.

    (a)   <u>Exercise area database menu</u>. The exercise area database menu displays and modifies the exercise areas available for training using the AAR map feature and the GPS function of PGS.

    (b)   <u>Determine exercise areas available</u>. Click on the drop down list box (item 4) and select the desired exercise area.

    (c)   <u>Download exercise area</u>. To download an exercise area into the computer memory, select LOAD SELECTED EXERCISE AREA FROM DATABASE (item 1). This will download the selected exercise area data so that it can be edited into an exercise.

    (d)   <u>Delete exercise area</u>. If any of the exercise areas listed are no longer used or have been replaced with newer versions, remove them from the computer by selecting DELETE SELECTED EXERCISE AREA IN DATABASE (item 2).

    (e)   <u>Add modified exercise areas</u>. If the map of an exercise area has been modified, the new exercise area can be added as an available exercise area for future exercises. Select SAVE CURRENT EXERCISE AREA IN DATABASE (item 3) to save a modified exercise area in the database.

    (2)   **Adding an exercise area.** If the required training area is not available in the database, it can be downloaded using the MAP EDIT menu. This menu allows new maps to be downloaded and modifications to be made to existing maps. If the training location has exercise areas available, it must be determined if the conversion parameters are valid for that location.

Notes.   1.   The file format for the map must be * .bmp (bit map).
            2.   Show Slide 9.

    (a)   <u>Downloading a new map</u>. If a new training area needs to be added to the database, it is downloaded from a disk containing a scanned map of the training area. Place the disk in the computer A drive and select READ NEW MAP FROM FILE (item 6). A dialog box appears. Select the A drive and file to be downloaded. Click on OK when selections are complete. The map is read into the computer and is displayed in the presentation area. Perform the following:

        <u>1</u>.   **Select map format.** UTM format must *always* be selected.

14-2.   CONFERENCE/DEMONSTRATION/PRACTICAL EXERCISE (Con't).

2.   **Adding conversion parameters.** In order for the collected TDRS position data to match the map data, conversion parameters for the training location must be entered into the database together with the map.

Note.   1.   Conversion parameters can be obtained from an existing exercise for the required location or can be obtained from the PGS CLS facility.
2.   Show Slide 10.

(b)   Conversion parameters. Open an existing exercise area at the required training location. From the CONVERSION PARAMETERS (item 10) menu, record all parameters programmed for that location.

Notes.   1.   A scale factor larger than 1 will make the map larger and a scale factor between 0 and 1 will make the map smaller.
2.   When the map has been resized, it must be scaled and conversion parameters must be applied.

(c)   Resize map. The map must be adjusted to the correct size representing the area used during the training exercise. Select RESIZE MAP (item 7) in the MAP EDIT menu. Mark the upper left and the lower right corner of the entire map and select the scale factor. The map will be resized according to selected scale factor.

(d)   Recolor map. The map can be recolored if necessary by selecting RECOLOR MAP (item 8). The entire map will be in the selected color.

(e)   Scale map. The map must be scaled to enable the computer to determine the size of the map and which section is to be used. Click on SCALE MAP (item 9).

1.   Select two points on the map diagonal from each other. Using a chart of the training area, determine the UTM coordinates for these points.
2.   Select the Scale map menu. Click on the map at the location of the first point and input the coordinates in UTM format. Repeat for the second point.

(f)   Creating a New Grid Map (item 11). If a map of the exercise area is not available, a grid map may be developed.

(g)   Save exercise area. To save the new exercise area, select EXERCISE AREA from the AAR Map menu bar and select EXERCISE AREA DATABASE.   Click on SAVE CURRENT EXERCISE AREA IN DATABASE. Enter the name of the new exercise area and click on NAME CHANGED to save the exercise area in the database. If further changes are made to the same exercise area, click on WRITE OVER to *update* the exercise area.

14-2.   CONFERENCE/DEMONSTRATION/PRACTICAL EXERCISE (Con't).

(3)   **Position targets on exercise area.** To program targets on an exercise area, select EXERCISE AREA menu and EDIT TARGETS.

Note.   Show Slide 11.

(a)   Exercise area name. Verify that correct exercise area is selected (item 12). Select the correct exercise area from the exercise area database as required.

(b)   New target. Select NEW TARGET (item 13) to program a new target on the exercise area. New input fields for the target will appear.

(c)   Target type. Enter target type in the target type box (item 14).

(d)   Target position. Enter longitude (X) and latitude (Y) (item 15) in UTM format.

(e)   Note. Notes (item 16) can be used to describe the target position on the exercise area. This will assist other instructors using the same exercise to position targets.

(f)   Target symbol. Program the appropriate target symbol (item 17) to be presented during AAR. Target symbol is programmed by selecting TARGET SYMBOL and then selecting OK. The target symbol library contains the following:

1.   Tank type target

2.   Personnel carrier/infantry fighting vehicle type target

3.   Truck type target

4.   Infantry target

(g)   Program desired target color by selecting TARGET COLOR (item 18). Select color and click on OK.

(h)   To edit existing targets, select the target from the drop down list box (item 19). This allows for adjustments to the programmed target data.

(i)   To delete targets, select the target from the drop down list box and select DELETE TARGET (item 20). The selected target will be removed from the exercise.

Note.   Show Slide 12.

e.   **Edit Existing Exercises.** Follow these steps to create a new exercise from an existing exercise.

(1)   Select FILE menu and OPEN EXERCISE. Select exercise to be edited.

(2)   Select EDIT TARGET menu.

(3)   Adjust the target scenario as required using the available tools.

(4)   Save new exercise area by selecting EXERCISE AREA and SAVE CURRENT EXERCISE AREA IN DATABASE. Enter a new name for the exercise area and click on WRITE OVER.

14-2.   CONFERENCE/DEMONSTRATION/PRACTICAL EXERCISE (Con't).

    f.   **AAR Using AAR Map.**

        (1)   Select exercise area used from EXERCISE AREA DATABASE menu.

        (2)   Select multiple cards if several players will be presented during the same AAR. Deselect multiple cards if only one player will be reviewed.

Note.   Show Slide 13.

        (3)   Insert the TDRS memory card(s) into the computer (one at a time) and select READ LOG for each one. Information from the TDRS memory card is read and stored in the computer. A dialog box appears for each card containing the following selections/information.

            (a)   Vehicle crew (item 21).

            (b)   Vehicle color (item 22) and symbol (item 23). Adjust as required.

Note.   The vehicle with SHOW EVENTS checkbox checked is the vehicle used as reference for the AAR. The vehicle last checked will be selected automatically by the computer.

            (c)   Check the SHOW EVENTS checkbox (item 24) if vehicle is to be the main vehicle followed during the AAR. This setting can be changed during the exercise if desired.

Note.   Show Slide 14.

        (3)   Start AAR by selecting RUN (item 25). Vehicle(s) will be presented on the exercise area map. AAR is performed in real time.

            (a)   The exercise can be stopped by selecting STOP (item 26) and restarted with RESTART (item 27).

            (b)   To advance from event to event, select NEXT (item 28).

            (c)   Click on the right arrow of the TIME horizontal control bar (item 29) while in the stopped mode to advance AAR time more rapidly.

Notes.   1.   Impact point will not be indicated for the firing system if the TDRS memory card was downloaded with multiple card selected.

        2.   Show Slide 15.

            (d)   Firing results are presented as hits on the panel target type fired upon. Firing results will not be presented if multiple cards have been selected on TDRS memory card. During force-on-force exercises, the target system hit results must be used during AAR.

14-2.   CONFERENCE/DEMONSTRATION/PRACTICAL EXERCISE (Con't).

        (e)   To view detailed firing result information, double click on the displayed result. The following information will be displayed:

            1.   Ammunition fired
            2.   Actual range to target
            3.   Impact point in azimuth and elevation

Note.   Show Slide 16.

        (f)   Target system results are presented as impact points on the target silhouette where the round hit. The color of the silhouette depends on target types and programmed vulnerability.

        (g)   To view detailed target result information, double click on the displayed result. The following information will be displayed:

            1.   Ammunition impact
            2.   Impact point in azimuth and elevation
            3.   Aspect angle of impact

Note.   Show Slide 17.

        (h)   To view vehicle information during AAR, double click on vehicle to display vehicle type (item 30) and vehicle information (item 31). Check the SHOW EVENT checkbox (item 32) to use a new vehicle as a reference vehicle during AAR.

Notes.   1.   Have students perform steps involved in creating a grid map.
           2.   Show Slide 18.

    g.   **Creating a Grid Map.** If the exercise areas in the map do not represent the area needed for a training exercise, a grid map may be developed.

        (1)   **Conversion parameters.** Open an exercise area from the existing training location in the database. From the CONVERSION PARAMETERS menu, record all parameters programmed for that location.

        (2)   **Creating grid map.** Select EXERCISE AREA menu and EDIT MAP. Select CREATE NEW GRID MAP.

            (a)   Set the size of the grid by clicking on two points on the screen.
            (b)   Select the number of grids to be used. Select area and count the number of grids from the center to the edge of the area. Enter this in the input field.
            (c)   Set map format to UTM.

14-2.   CONFERENCE/DEMONSTRATION/PRACTICAL EXERCISE (Con't).

  (d)   Add conversion parameter. In order for the collected TDRS position data to match the map data, map information about the training location must be entered into the database together with the map. Once this is done, an exercise area is created which has the capability to display PGS targets and moving vehicles.

 (3)   **Scale map.** The map must be scaled to enable the computer to determine the size of the map grids.

  (a)   Select two points on the map diagonal from each other. Using a map of the training area, determine the UTM coordinates for these points.
  (b)   Select the Scale map menu. Click on the map at the location of the first point and input the coordinates in UTM format. Repeat for the second point.

 (4)   **Save new exercise area.** An exercise area is created when all conversion parameters have been entered. The exercise area must be added to the database if it is to be used for future training exercises. To save the new exercise area, select EXERCISE AREA DATABASE and SAVE CURRENT EXERCISE AREA TO DATABASE. Enter a name for the exercise area and click on NAME CHANGED to save.
 (5)   **Position targets in grid map.** If required, position targets on grid map using a map or hand held GPS receiver to determine target positions. Input targets and positions using the EDIT TARGET menu. To save the targets to the exercise area, save the map under a new name into the exercise area database.

Note.   Using practical exercises (Appendix D), practice TDRS memory card setups.

14-3.   TEST.   (20 minutes)

    See Appendix C.

14-4.   FINAL REVIEW.   (5 minutes)

  a.   **Student Questions.**

Note.   Show Slide 19.

  b.   **Summary of Main Teaching Points.**

  (1)   AAR map controls and indicators
  (2)   Creation of new exercises
  (3)   Changing existing exercises
  (4)   Evaluation of training exercise with AAR map
  (5)   Creation of grid map exercise

14-4.   FINAL REVIEW (Con't).

<u>Note</u>.   Show Slide 20.

    c.   **<u>Closing Statement.</u>** This block of instruction has taught you to prepare and evaluate a training exercise with AAR map.

APPENDIX A
TO LESSON PLAN 14

AFTER ACTION REVIEW (AAR) MAP

TOOLS, EQUIPMENT, AND MATERIALS

A-1.   CLASSROOM STATION.

Listed equipment is one per student, except as noted.

1.   TDRS computer unit (one per two students)
2.   TDRS memory card
3.   Applicable maps (one set per two students)

**APPENDIX B
TO LESSON PLAN 14**

AFTER ACTION REVIEW (AAR) MAP

SAFETY

Listed general safety regulations are to be strictly enforced during the performance of this lesson.

1. Mount and dismount the vehicle from over left front or through back hatch.
2. Maintain three (3) points of contact while on top of the vehicle.
3. Follow unit SOP on smoking near vehicle.
4. Do not go over or under gun barrels.
5. Ensure that TURRET DRIVE LOCK is set to LOCKED.
6. Set vehicle MASTER SWITCH OFF.
7. Turn turret power to OFF IAW TM 08594A-10/1A, paragraph 2-56.
8. Ensure that AP and HE feed shaft stop knobs (located on left side of main gun feeder) are pushed IN before training. When knobs are out, electrical cables may be snagged causing damage to the vehicle fire control system.
9. No cables should be connected or disconnected by untrained personnel.

APPENDIX C
TO LESSON PLAN 14

AFTER ACTION REVIEW (AAR) MAP

TEST ADMINISTRATIVE GUIDE

C-1.   TASK.

Administer test, *After Action Review (AAR) Map.*

C-2.   CONDITIONS.

Given a TDRS computer unit, training area map, and TM 9-6920-711-12&P-1.

C-3.   STANDARDS.

The student will correctly create a grid map exercise area on a defined area of the map.

C-4.   PERSONNEL, EQUIPMENT, AND MATERIAL REQUIRED.

   a.   Evaluator
   b.   TDRS computer unit (one per student)
   c.   Map of training area to be used for the test (one per student)
   c.   3.5 in. formatted disk (one per student)
   d.   Scoring checklist Appendix C (one copy for each student tested)

C-5.   TEST PLANNING TIME.

   Administrative time: 5 minutes
   Test time: <u>15 minutes</u>
   TOTAL TIME (per student):   20 minutes

C-6.   OTHER INFORMATION.

Before the student arrives, the evaluator will:

   a.   Ensure that each computer is operational and switched OFF.
   b.   Ensure that each bench has one TDRS computer unit, map, pen, paper, and TM 9-6920-711-12&P-1.
   c.   Have scoring checklist ready for student to be tested.

C-7.   INSTRUCTIONS TO STUDENT.

"The purpose of this test is to evaluate your skills in creating a map that can be used for a training exercise. You will have 15 minutes to complete the test. All information needed for the test is available in the test guidelines or on the table in front of you. Your time will start when I announce 'BEGIN' and end when you announce 'FINISHED'. You may use the materials in front of you during the test."

"Do you understand the requirements of this test?" (Answer questions)
"You may begin." (Start time)

AFTER ACTION REVIEW (AAR) MAP

Student Guidelines

C-8.   TASK.

a.   Create a grid map exercise area to be used for PGS panel gunnery. The training area requires a grid map of 16 squares, each representing 1000 m * 1000 m area. The size of each grid should be approximately 1 in. on the screen.

b.   The lower left corner of the training area is located at these coordinates:

              Longitude: 0454000   Latitude: 3679000

c.   Location of the gunnery exercise range is Camp Pendleton.

d.   Position targets at the following specified locations:

Target Number	Target Type	Target Color	Longitude	Latitude
1	Infantry	Red	0459000	3683000
2	T 80 Front	Green	0458200	3683800

e.   Create the exercise and add targets in the training area.

f.   Save the exercise area in the computer as Camp Pendleton.

AFTER ACTION REVIEW (AAR) LIST

Scoring Checklist

NAME _____ UNIT _____

GRADE _____ DUTY POSITION _____

	GO	NO GO
1. Conversion parameters		
Conversion parameters properly recorded prior to start of map creation	_____	_____
2. Grid map		
a. Correct command button selected to begin creating map	_____	_____
b. Grid size selected to be approximately 1 in.* 1 in.	_____	_____
c. Correct number of grids selected	_____	_____
d. Map format set to UTM	_____	_____
e. Conversion parameters properly input	_____	_____
3. Scale map		
a. Two points on the map properly determined prior to start of scaling map	_____	_____
b. Map properly scaled	_____	_____
4. Targets		
a. Infantry target properly input and displayed on screen	_____	_____
b. T80 target properly input and displayed on screen	_____	_____
5. Saving exercise		
Exercise properly saved in exercise area database	_____	_____

	GO	**NO GO**	**INITIALS**
Student satisfactory completed all requirements	_____	_____	_____

EVALUATOR _____ DATE _____

REMARKS _____

APPENDIX D
TO LESSON PLAN 14

AFTER ACTION REVIEW (AAR) MAP

PRACTICAL EXERCISES

D-1.   GUNNERY EXERCISE.

a.   You will perform a gunnery exercise on range_____ at _____. The gunnery exercise will include three stationary targets and one moving target. The targets will be the following types and at the following locations.

Target Number	Target type	Latitude	Longitude
1	Infantry target		
2	Truck target		
3	BMP front		
4	Moving tank target		

b.   Create the exercise range required to perform the gunnery training exercise.

D-2.   GRID MAP EXERCISE.

a.   Create a new grid map exercise area for Camp Pendleton. The training area requires a grid map of 4 squares * 4 squares. The training area is located between 0457000 - 0461000 longitude and 3681000 - 3685 000 latitude. Position targets at the following grid coordinates:

Target Number	Target Type	Target Color	Longitude	Latitude
1	Personnel carrier	Red	0457300	3683800
2	Truck target	Blue	0460000	3682000

b.   Create the exercise with the targets. Save the exercise area in the computer as Camp Pendleton.

**APPENDIX E
TO LESSON PLAN 14**

AFTER ACTION REVIEW (AAR) MAP

VIEWGRAPHS